

REMARKS

Claims 1-51 were pending in this application at the time the present Office Action was mailed. Claim 26 has been cancelled from the application in this response, without prejudice, and without commenting on or conceding the merits of the outstanding rejection of this claim. Claims 1, 2, 5, 8, 13, 18, 21, 27, 32, 35, 40, 43, 48 and 51 have been amended in this response. Accordingly, claims 1-25 and 27-51 are now pending in the application.

In the Office Action mailed January 2, 2003, claims 1-51 were rejected. More specifically, the status of the application in light of this Office Action is as follows:

- (A) The drawings were objected to for failing to comply with 37 C.F.R. 1.84(p)(5);
- (B) The title of the application was objected to for failing to be directed to the elected invention;
- (C) Claims 1-51 were rejected under 35 U.S.C. § 112, second paragraph;
- (D) Claims 1-25 and 27-51 were rejected under 35 U.S.C. § 102(b) as being anticipated by Japanese Patent No. 11-17048 to Ri et al. ("Ri"); and
- (E) Claim 26 was rejected under 35 U.S.C. § 102(b) as being anticipated by Japanese Patent No. 11-77733 to Sasaki et al. ("Sasaki").

A. Response to the Drawing Objection

The drawings were objected to for including a reference number that is not mentioned in the written description. Enclosed herewith is a Request for Approval of Drawing Change and a clean version of the drawings with the reference number removed. Accordingly, the objection to the drawings should be withdrawn.

B. Response to the Title Objection

The title of the application was objected to for failing to be directed to the elected invention. The title of the application has been amended accordingly to clarify the invention to which the claims are directed.

C. Response to the Section 112 Rejections

Claims 1-51 were rejected under 35 U.S.C. § 112, second paragraph. Claims 1, 2, 5, 8, 13, 18, 21, 27, 32, 35, 40, 43, 48 and 51 have been amended to clarify features of these claims and to remove the allegedly indefinite language without narrowing the scope of these claims. Claim 2 has been amended to clarify the antecedent basis of a feature of the claim without narrowing the scope of this claim. Accordingly, the Section 112 rejection of these claims should be withdrawn.

D. Response to the Section 102(b) Rejection over Ri

Claims 1-25 and 27-51 were rejected under 35 U.S.C. § 102(b) as being anticipated by Ri. The Examiner asserts that Ri discloses an interconnecting unit including a substrate having a cap-zone and a gasket 21 or 36 attached to the substrate outside of the cap-zone.

1. Claim 1 is Directed to an Interconnecting Unit Including a Substrate and a Gasket Removably Attached to the Substrate

Aspects of the invention are directed toward an interconnecting unit for electrically coupling a microelectronic die to voltage sources and signal sources. The interconnecting unit includes a substrate having a cap-zone defined by an area for encapsulation and a gasket removably attached to the substrate outside of the cap-zone. An advantage of this arrangement is that it prevents the mold compound from leaking between the substrate and the mold. Accordingly, the mold is less likely to be fouled by the mold compound, and the ball-pads are less likely to be covered by mold compound.

In particular, claim 1 is directed to an interconnecting unit for electrically coupling a microelectronic die having an integrated circuit to voltage sources and signal sources. The interconnecting unit includes a substrate having a cap-zone defined by an area for encapsulation by a protective casing, a plurality of interconnects having a plurality of first elements in the cap-zone, a plurality of second elements arranged in an array outside of the cap-zone, and a plurality of transmission lines coupling the first elements to the second elements. The unit further includes a gasket removably attached to the substrate outside of the cap-zone. At least a portion of the gasket is adjacent to at least a portion of the cap-zone. Accordingly, an interconnecting unit having the features recited in claim 1 can achieve the benefits described above.

2. Ri Discloses a Semiconductor Chip Package Having a Wiring Layer Formed in a Flexible Tape

Ri discloses a semiconductor chip package including a flexible circuit board 20 having reinforcing materials 28, a flexible tape 21 attached to the reinforcing materials 28, and a metallic-circuit wiring layer 26 formed in the upper surface of the flexible tape 21. The wiring layer 26 includes circuit wiring 24, a bonding pad 23 connected to one end of the circuit wiring 24, and a land pad 25 connected to the other end of the circuit wiring 24. The flexible tape 21 electrically insulates the wiring layer 26. The wiring layer 26 is formed in the flexible tape 21 after etching a portion of the tape 21. As such the flexible tape 21 is a permanent component of Ri's package. Ri also discloses a dam 36 for preventing overflow of the closure resin 34. The dam 36 is formed by dispensing the same resin as the closure resin 34.

3. Ri Fails to Disclose a Gasket Removably Attached to a Substrate

Ri fails to disclose an interconnecting unit including, *inter alia*, "a gasket removably attached to the substrate," as recited in claim 1. For example, Ri merely discloses a chip package having a flexible tape and a metallic-circuit wiring layer formed in the flexible tape. Assuming for the sake of argument that Ri's flexible tape corresponds at least in part to the gasket of claim 1, the flexible tape is not "removably

attached to the substrate," as recited in claim 1. To the contrary, the flexible tape is fixedly attached to the reinforcing materials to electrically insulate the components of the wiring layer. Alternatively, assuming for the sake of argument that Ri's dam corresponds at least in part to the gasket of claim 1, the dam is not "removably attached to the substrate," as recited in claim 1. The dam is fixedly attached to the flexible tape and at least partially covered with the closure resin. Consequently, Ri fails to disclose each and every element of claim 1. Therefore, the Section 102(b) rejection of claim 1 should be withdrawn.

Claim 1 is patentable over Ri under Section 103 because a person skilled in the art would not be motivated to modify Ri's device to make the flexible tape removable. If the flexible tape were removed, the components of the wiring layer would not be electrically insulated from each other, and consequently, the components would likely fail. Thus, because making Ri's flexible tape removable would likely destroy the function of Ri's device, a person skilled in the art would not be motivated to modify Ri in this manner. Claim 1, therefore, is patentable over Ri and the rejection of claim 1 should be withdrawn.

Claims 2-12 depend from claim 1. Accordingly, the Section 102(b) rejection of these claims should be withdrawn for the reasons discussed above with reference to claim 1 and for the additional features of these claims.

Independent claim 13 has, *inter alia*, features generally similar to those included in claim 1. Accordingly, the Section 102(b) rejection of claim 13 should be withdrawn for the reasons discussed above with reference to claim 1 and for the additional features of claim 13.

Claims 14-20 depend from claim 13. Accordingly, the Section 102(b) rejection of these claims should be withdrawn for the reasons discussed above with reference to claim 13 and for the additional features of these claims.

4. Claim 21 is Directed to an Interconnecting Unit Including a Substrate and a Barrier That Covers at Least One Ball-Pad

Claim 21 is directed to an interconnecting unit for electrically coupling a microelectronic die having an integrated circuit to voltage sources and signal sources. The interconnecting unit includes a substrate having a cap-zone defined by an area for encapsulation by a protective casing, an opening in the cap-zone, a plurality of contact elements arranged in the cap-zone along an edge of the opening, a plurality of ball-pads arranged in a ball-pad array outside of the cap-zone, and a plurality of conductive lines coupling the contact elements to the ball-pads. The unit further includes a barrier on the substrate outside of the cap-zone. At least a portion of the barrier is adjacent to at least a portion of the cap-zone, and the barrier covers at least one of the ball-pads. Accordingly, an interconnecting unit having the features recited in claim 21 can achieve the benefits described above with reference to claim 1.

5. Ri Fails to Disclose an Interconnecting Unit Including a Substrate and a Barrier That Covers at Least One Ball-Pad

Ri fails to disclose an interconnecting unit including, *inter alia*, a barrier that "covers at least one of the plurality of ball-pads," as recited in claim 1. For example, Ri merely discloses a chip package including a flexible tape and a metallic-circuit wiring layer formed in the flexible tape. Assuming for the sake of argument that Ri's flexible tape and land pads correspond at least in part to the barrier and ball-pads, respectively, of claim 21, the flexible tape does not cover "at least one of the plurality of ball-pads," as recited in claim 21. Rather, the land pads are formed in the flexible tape. Alternatively, assuming for the sake of argument that Ri's dam corresponds at least in part to the barrier of claim 21, the dam does not cover "at least one of the plurality of ball-pads," as recited in claim 21. Consequently, Ri fails to disclose each and every element of the claim 21. Therefore, the Section 102(b) rejection of claim 21 should be withdrawn.

Claim 21 is patentable over Ri under Section 103 because a person skilled in the art would not be motivated to modify Ri's device to cover the land pads with the

flexible tape. If the flexible tape were placed over the land pads, Ri could not form the wiring layer in the flexible tape. Thus, because placing Ri's flexible tape over the land pads would likely destroy the function of Ri's device, a person skilled in the art would not be motivated to modify Ri in this manner. Claim 21, therefore, is patentable over Ri and the rejection of claim 21 should be withdrawn.

Claims 22-25 depend from claim 21. Accordingly, the Section 102(b) rejection of these claims should be withdrawn for the reasons discussed above with reference to claim 21 and for the additional features of these claims.

Independent claim 27 has, *inter alia*, features generally similar to those included in claim 21. Accordingly, the Section 102(b) rejection of claim 27 should be withdrawn for the reasons discussed above with reference to claim 21 and for the additional features of claim 27.

Claims 28-34 depend from claim 27. Accordingly, the Section 102(b) rejection of these claims should be withdrawn for the reasons discussed above with reference to claim 27 and for the additional features of these claims.

Independent claim 35 has, *inter alia*, features generally similar to those included in claim 21. Accordingly, the Section 102(b) rejection of claim 35 should be withdrawn for the reasons discussed above with reference to claim 21 and for the additional features of claim 35.

Claims 36-42 depend from claim 35. Accordingly, the Section 102(b) rejection of these claims should be withdrawn for the reasons discussed above with reference to claim 35 and for the additional features of these claims.

Independent claim 43 has, *inter alia*, features generally similar to those included in claim 1. Accordingly, the Section 102(b) rejection of claim 43 should be withdrawn for the reasons discussed above with reference to claim 1 and for the additional features of claim 43.

Claims 44-50 depend from claim 43. Accordingly, the Section 102(b) rejection of these claims should be withdrawn for the reasons discussed above with reference to claim 43 and for the additional features of these claims.

Independent claim 51 has, *inter alia*, features generally similar to those included in claim 1. Accordingly, the Section 102(b) rejection of claim 51 should be withdrawn for the reasons discussed above with reference to claim 1 and for the additional features of claim 51.

E. Response to the Section 102(b) Rejection over Sasaki

Claim 26 was rejected under 35 U.S.C. § 102(b) as being anticipated by Sasaki. Claim 26 has been canceled and therefore the rejection of this claim is now moot.

F. Conclusion

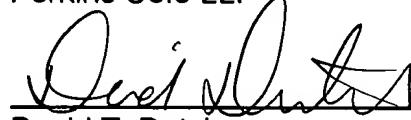
In light of the foregoing amendments and remarks, all of the pending claims are in condition for allowance. Applicant, therefore, requests reconsideration of the application and an allowance of all pending claims. If the Examiner wishes to discuss the above-noted distinctions between the claims and the cited references, or any other

distinctions, the Examiner is encouraged to contact David Dutcher. Additionally, if the Examiner notices any informalities in the claims, he is also encouraged to contact David Dutcher to expediently correct any such informalities.

Respectfully submitted,

Perkins Coie LLP

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David T. Dutcher
Registration No. 51,638

Correspondence Address:

Customer No. 25096
Perkins Coie LLP
P.O. Box 1247
Seattle, Washington 98111-1247
Phone: (206) 583-8888